



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,600	01/25/2007	Hiroshi Akahori	46884-5470	4196
55694 7590 12/11/2007 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209			EXAMINER BAKER, DAVID S	
			ART UNIT 2884	PAPER NUMBER
			MAIL DATE 12/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,600	Applicant(s) AKAHORI ET AL.	
	Examiner David S. Baker	Art Unit 2884	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>04/05/06, 01/25/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyamoto (JP 55-165687 A).

Regarding claim 1, Miyamoto discloses a charge transferring radiation detection device comprising: a semiconductor substrate having an energy ray sensitive region that generates charges in response to the incidence of energy rays (F:1-4, abstract); an output section accumulating the charges generated in said energy ray sensitive region, and outputting a current signal or a voltage signal corresponding to the accumulated charge amount (F:1-4, abstract); a plurality of electrodes, each positioned so as to cover a part of said energy ray sensitive region and transferring the charges generated in said energy ray sensitive region to said output section (F:1-4, abstract); and a voltage dividing circuit electrically connected to each of said electrodes, said voltage dividing circuit including a plurality of voltage dividing resistors serially connected to each other, each of said voltage dividing resistors providing a corresponding DC output potential to the associated one of said electrodes by dividing a DC output voltage from a DC power supply (F:1-4, abstract).

Regarding claim 2, Miyamoto discloses a charge transferring radiation detection device comprising: a semiconductor substrate having an energy ray sensitive region that generates charges in response to the incidence of energy rays (F:1-4, abstract); an output section accumulating the charges generated in said energy ray sensitive region, and outputting a current signal or a voltage signal corresponding to the accumulated charge amount (F:1-4, abstract); a plurality of electrodes, each positioned so as to cover a part of said energy ray sensitive region and transferring the charges generated in said energy ray sensitive region to said output section (F:1-4, abstract); and a voltage dividing circuit including a plurality of voltage dividing resistors that are electrically connected to said electrodes respectively and are serially connected to each other, said voltage dividing circuit providing predetermined potentials to said electrodes respectively such that the potential wells, which are respectively formed below said electrodes, become gradually deeper in a charge transferring direction (F:1-4, abstract).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto (JP 55-165687 A) in view of Miyaguchi (JP 05-075090 A).

Regarding claim 3, Miyamoto discloses the claimed invention, but does not disclose expressly that the output section includes an impurity region accumulating the charges generated in the energy ray sensitive region and a gate inhibiting or allowing the movement of charges into said impurity region in accordance with a signal input.

Miyaguchi discloses a semiconductor photodetector comprising a n-type charge accumulation region with an output electrode and a reset drain controlled by signal input (F:1-5, abstract). At the time the invention was made, it would have been obvious to include the gated output and reset circuitry of Miyaguchi into the detection circuitry of Miyamoto. The motivation for doing so would have been to improve output signal intensity by allowing for the accumulation of detection charges whose readout would be controlled with the selective output circuit.

Regarding claim 4, Miyamoto discloses the claimed invention, but does not disclose expressly that the output section includes an impurity region accumulating the charges generated in the energy ray sensitive region and a gate inhibiting or allowing the movement of charges into said impurity region in accordance with a signal input.

Miyaguchi discloses a semiconductor photodetector comprising a n-type charge accumulation region with an output electrode and a reset drain controlled by signal input

(F:1-5, abstract). At the time the invention was made, it would have been obvious to include the gated output and reset circuitry of Miyaguchi into the detection circuitry of Miyamoto. The motivation for doing so would have been to improve output signal intensity by allowing for the accumulation of detection charges whose readout would be controlled with the selective output circuit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is (571) 272-6003. The examiner can normally be reached on MTWRF 9:30am-6:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number:
10/574,600
Art Unit: 2884

Page 6

DSB



TECH. 17. 1ER 2600